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NEW AND HITHERTO UNFIGURED JAPANESE MOLLUSKS.

BY H. A. PILSBRY.

The forms noticed below, and illustrated upon the accompanying plates, were collected in Japan by Mr. Frederick Stearns, of Detroit, Michigan, and placed in the writer's hands for study. So rich in animal life are the Japanese waters, that we may still expect novel and beautiful forms of mollusks for many years to come, from that quarter.

The illustrations are due to the liberality of Mr. Stearns.

Thylacodes medusæ n. sp. Pl. XVII, XVIII.

A large species, nearly always living in clusters, attached generally to shells. The young form an irregular spiral, the whorls of which rest prone upon the base of attachment. As the tube increases in diameter it becomes carinated on the lower outer portion, or the part corresponding to the "shoulder" of the whorl in a regularly spiral gasteropod. At this stage the whorls become more laxly coiled, and when not too closely clustered, present the appearance of such planorboid forms as *T. masier* Dh., *T. atra* Rouss, etc. This stage is shown in the cluster pictured on pl. XVI. The subsequent growth is erect and but slightly spiral, the tube generally contracting slightly in diameter, and cylindrical in form. The sculpture consists of narrow longitudinal cords at rather wide intervals, the spaces being occupied by a variable number of threads, (usually three) of which the middle one is larger. Irregular growth-lines crenulate the longitudinals. This sculpture is normally developed upon all sides of the tube. Upon the latter part of the free portion it is often subobsolete.

The aperture is circular in adult shells, at right angles to the tube, and white within. The external surface is of a pale brown tint.

No internal septa were found in numerous broken specimens; and although the shells were apparently alive when collected, no opercula were preserved in them, the absence of this organ being one of the characteristics of *Thylacodes*.

The dimensions may be seen in the figures, which are of natural size. The diameter of the tubes at the aperture averages 13 mm.

The embryonic shell, at the time it becomes attached, is bulimiform, glossy and smooth; lying upon its side. The first whorl formed

after attachment takes place is perfectly planorboid, showing the nuclear shell in the center.

Locality, Saruga Coast, Japan.

This species differs from *Vermetus imbricatus* Dkr.¹ in lacking the imbricating growth-striae of that form.

V. imbricatus as figured by Dunker is a planorboid form, like *V. masier* Dh., *atra* Rouss, etc., but it may possibly be an immature shell.

T. medusæ is apparently allied to *V. polyphragmus* Sassi, *V. dentiferus* Lam. and *V. novæ-hollandiæ* Rouss., but it differs from them in having the sculpture developed over the whole circumference of the tube, not confined to its upper surface, or the part corresponding to the base of the shell in ordinary gasteropods, as it is in those species.

The literature of *Vermetidæ* is in a most confused state at present, the labors of Mörch being as remarkable for their obscurity as for their extent, and that is considerable.

***Terebra Stearnsii* n. sp.** Pl. XIX, fig. 5.

Shell very large, slender and elongated. 22 whorls remaining in the specimen described, the upper portion, comprising probably about one-fourth of the entire length, being broken off. The whorls are flattened, having a narrow but prominent shoulder immediately below the sutures, causing the spire to appear narrowly terraced. The sculpture on the body-whorl consists of a narrow, deeply impressed spiral groove, revolving at one-third of the distance between suture and peripheral angle, another less impressed groove below it at the lower third, the spaces limited by these two grooves being smooth save for slight growth-lines. Midway between the lower groove mentioned and the peripheral angle there is a still deeper groove, with one or two impressed spiral lines on each side of it. The base has numerous (about 15) unequal spiral grooves.

The color is soiled whitish with a series of brown spots upon the middle and lower part of each whorl. The aperture is small; columella not obviously plicate, nearly vertical above, strongly curving to the left below. Alt. of the decollated specimen 105, greatest breadth $13\frac{1}{2}$ mm.; alt. of aperture 12, breadth 7 mm. Japan; exact locality unknown.

¹ *V. imbricatus* has been re-named *Thylacodes adamsii* by Mörch, Proc. Zool. Soc. Lond. 1865, p. 99.

Siphonalia fuscolineata Pse. Pl. XIX, fig. 4.

This is placed among the "unfigured and undetermined" species in Tryon's monograph of the genus. It is allied to *S. longirostris* Dkr., but has a longer spire and much smaller aperture.

Two specimens were collected in the Inland Sea of Japan.

Astralium Japonicum Dunker. Pl. XIX, figs. 6, 7, 8.

The specimens of this species collected by Mr. Stearns attain dimensions far exceeding those of the original specimens, the largest measuring 160 mm. diam. The operculum shows this species to belong to the section *Pachypoma* Gray, as that section is restricted in my monograph of *Astralium*.¹ The operculum is excessively like that of *Astralium inequale*, the type and hitherto the only known species of the section *Pachypoma*.

The specimens were collected on the southeast coast of Province of Kii.

It is very probable that *Astralium Wardii* Baker, recently described, is merely a depressed specimen of *A. Japonicum*.

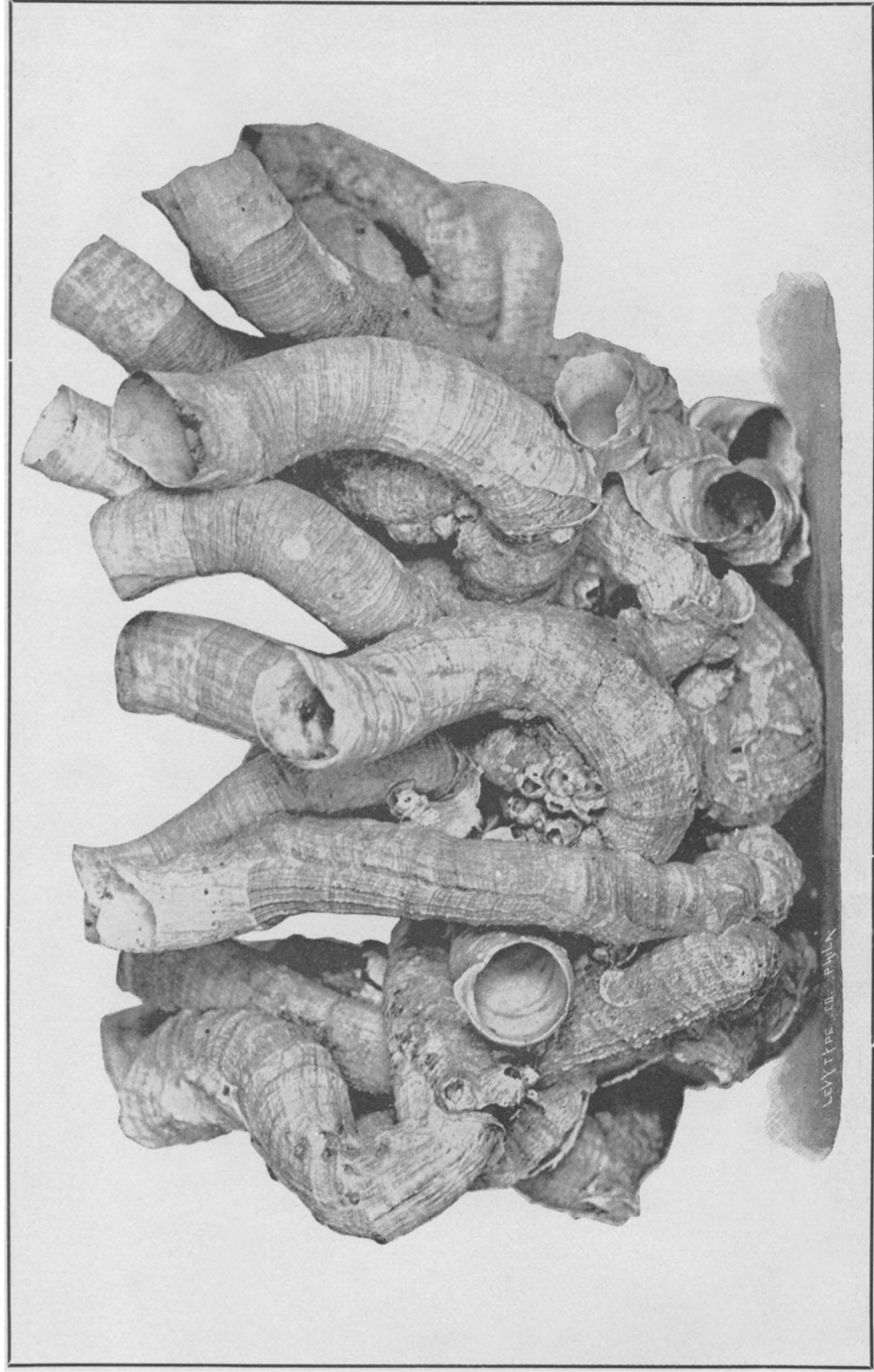
Vola puncticulata Dunker. Pl. XIX, figs. 1, 2, 3.

The specimen is figured to show the characters of this beautiful species when mature. Dunker's original examples, figured in the Ind. Moll. Mar. Jap., pl. xi, figs. 10, 11, being less than half grown. It is perhaps the most beautiful species of *Vola*, a group remarkable for beauty.

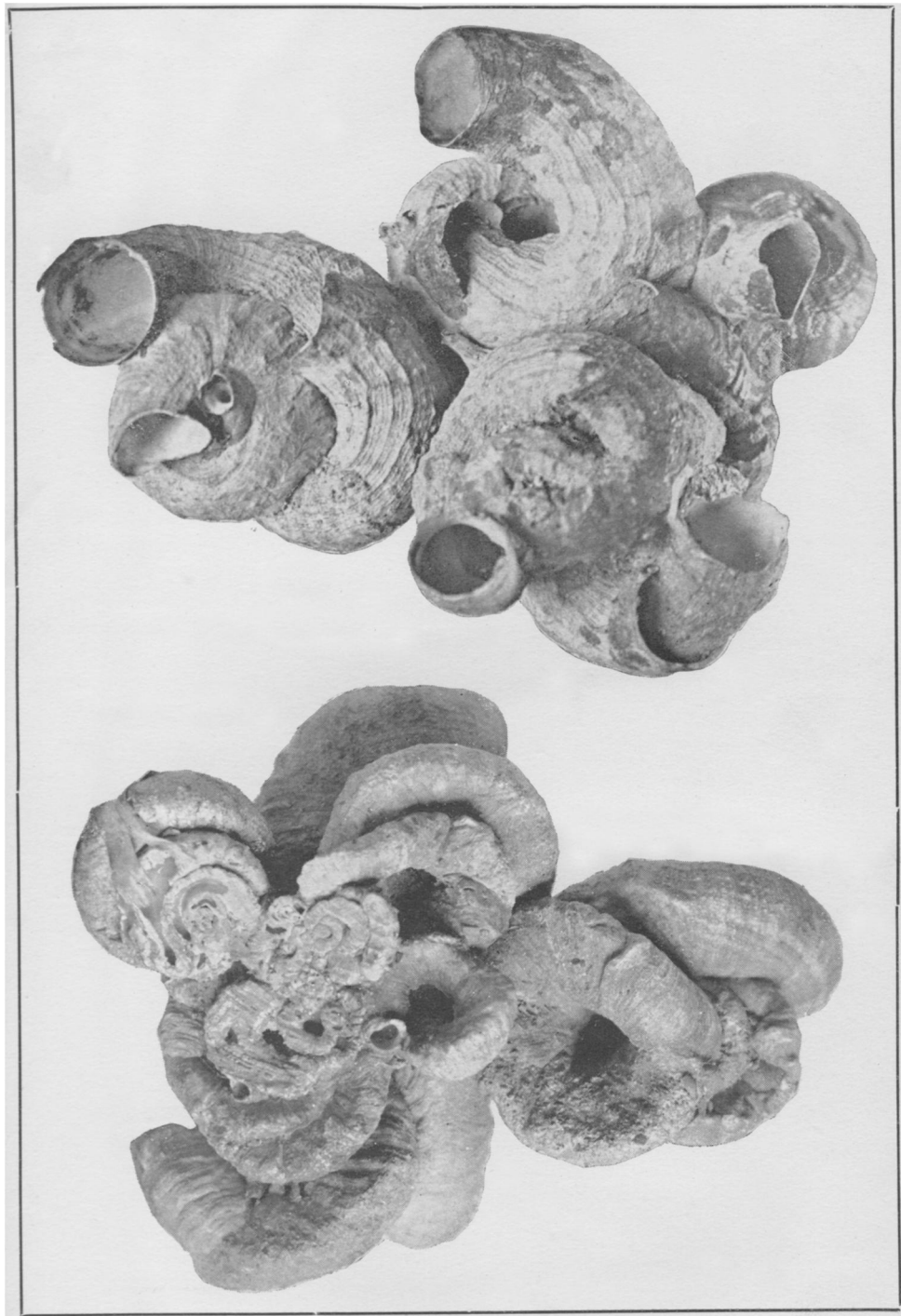
Macrochlamys Stearnsii Pilsbry. Pl. XIX, figs. 9, 10, 11.

Figures of this species are here given. The description will be found on p. 457 of this volume.

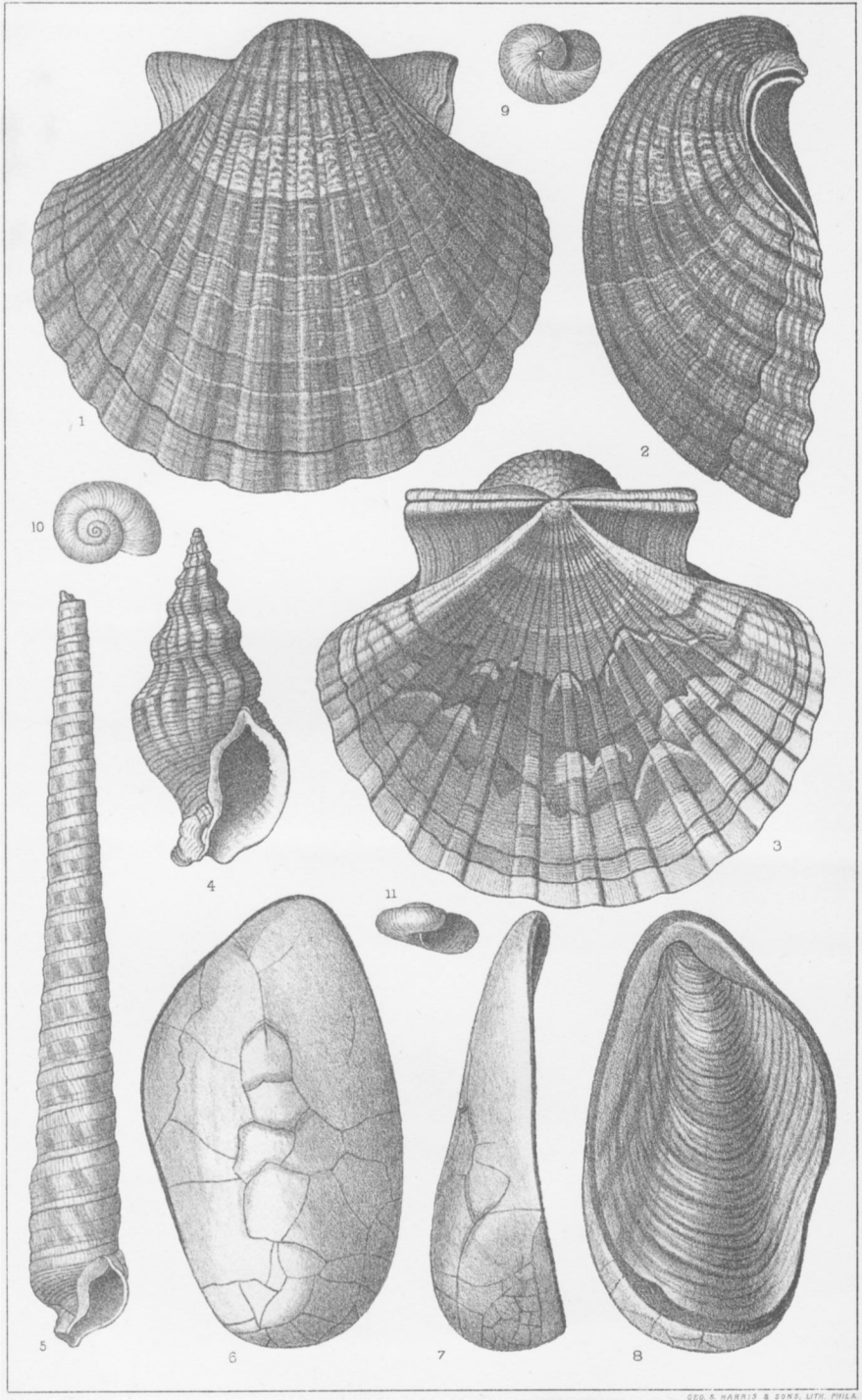
¹Manual of Conchology, X, p. 221, 242, 1888.



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